Assisting Patients with Diabetes: Smoking Cessation

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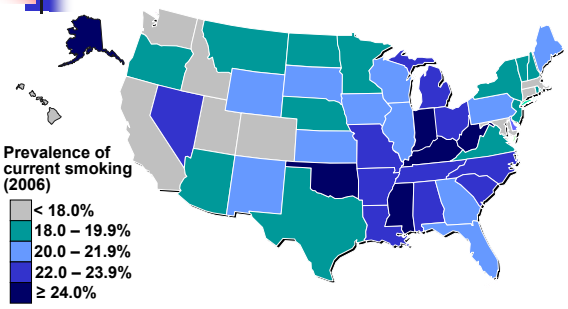
Acknowledgement:
Rx For Change - Clinician Assisted Tobacco Cessation
http://rxforchange.ucsf.edu/

STATE-SPECIFIC PREVALENCE of SMOKING among ADULTS, 2006



Centers for Disease Control and Prevention. (2007). *MMWR* 56:993–996.

Smoking as a risk factor for diabetes

- Smoking is a risk factor for the development of type 2 diabetes
  - Dose related
    - Heavy (1.61) > light (1.29) > former smokers (1.23)
    - May be modifiable – i.e. stop smoking = decreased risk
  - Estimated 12% of all type 2 dm might be attributable to smoking
    - 2.3 million cases of diabetes in the U.S
    - $14.9 billion of the $132 billion annual cost

Willi C et al. Active Smoking and the Risk of Type 2 DM. JAMA 2007;298:2654

Smoking and Diabetes

- How are these connected?
  - Smoking has direct effects on beta cell function
    - In utero + lactation exposure to nicotine has effects on both beta cell proliferation and apoptosis → leading to increases in the risk of diabetes development in the child.
  - Smoking decreases the absorption of insulin, and is associated with increased insulin resistance
  - Smoking is associated with central adiposity, hyperlipidemia, increased blood pressure
  - Also associated with increased risk of severe hypoglycemia in type 1 patients.

Borowitz J et al Nicotine and Type 2 DM. Toxicological Sciences. 2008;103:225.
Hirai F et al. Severe Hypoglycemia and Smoking in a long term type 1 dm population. Diabetes Care. 2007;1437.

Smoking and Diabetes

- Accelerated progression of microvascular disease (esp. nephropathy) even with ACEI use and blood pressure control.
- Neuropathy 2.2x more common in patients with diabetes who smoke - ?reversible
- Kids who smoke and have diabetes are at 50 to 75% greater risk for morbidity/mortality in later life than those who do not smoke.

Sherman J. The impact of smoking and quitting smoking on patients with diabetes. Diabetes Spectrum 2005;18: 202.
Tyc V et al. Smoking rates and the state of smoking interventions for children with chronic illness. 2005:118: 471
Chuahrin T et al. Cigarrette smoking predicts faster progression of type 2 dn despite acei. Am J Kid Dis 2002;376

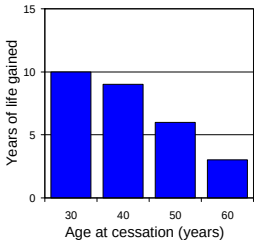
HEALTH CONSEQUENCES of SMOKING

- Cancers
  - Acute myeloid leukemia
  - Bladder and kidney
  - Cervical
  - Esophageal
  - Gastric
  - Laryngeal
  - Lung
  - Oral cavity and pharyngeal
  - Pancreatic
- Pulmonary diseases
  - Acute (e.g., pneumonia)
  - Chronic (e.g., COPD)
- Cardiovascular diseases
  - Abdominal aortic aneurysm
  - Coronary heart disease
  - Cerebrovascular disease
  - Peripheral arterial disease
- Reproductive effects
  - Reduced fertility in women
  - Poor pregnancy outcomes (e.g., low birth weight, preterm delivery)
  - Infant mortality
- Other effects: cataract, osteoporosis, periodontitis, poor surgical outcomes

U.S. Department of Health and Human Services. (2004). *The Health Consequences of Smoking: A Report of the Surgeon General.*

SMOKING CESSATION: REDUCED RISK of DEATH

- Prospective study of 34,439 male British doctors
- Mortality was monitored for 50 years (1951–2001)



On average, cigarette smokers die approximately 10 years younger than do nonsmokers.

Among those who continue smoking, at least half will die due to a tobacco-related disease.

Doll et al. (2004). *BMJ* 328(7455):1519–1527.

QUITTING: HEALTH BENEFITS

Time Since Quit Date

Circulation improves, walking becomes easier Lung function increases up to 30%	2 weeks to 3 months	Lung cilia regain normal function
	1 to 9 months	Ability to clear lungs of mucus increases Coughing, fatigue, shortness of breath decrease
Excess risk of CHD decreases to half that of a continuing smoker	1 year	
	5 years	Risk of stroke is reduced to that of people who have never smoked
Lung cancer death rate drops to half that of a continuing smoker Risk of cancer of mouth, throat, esophagus, bladder, kidney, pancreas decrease	10 years	
	after 15 years	Risk of CHD is similar to that of people who have never smoked

Smoking and diabetes

- Percent smoking similar to patients without diabetes
  - Highest in the 25 – 44 age group, lowest in 65 +
  - More common in African Americans, lower educational attainment, shorter duration of dm, not attending any dm education classes.
- Smokers with diabetes are:
  - Less likely to be compliant with their dm care, check their blood glucose regularly, or have regular diabetes care
  - More likely to be depressed
  - Less interested in quitting
- BUT ONLY 50% are advised to quit smoking!

Solberg LI et al. Diabetes patients who smoke: are they different? Ann Fam Med 2004;2:26-32
Karter et al. Educational disparities in rates of smoking among dm adults. Am J Pub Health. 2008;98:365

TOBACCO DEPENDENCE: A 2-PART PROBLEM

Tobacco Dependence

Physiological	**Behavioral**
The addiction to nicotine ↓ Treatment Medications for cessation	The habit of using tobacco ↓ Treatment Behavior change program

Treatment should address the physiological **and** the behavioral aspects of dependence.

WHY SHOULD CLINICIANS ADDRESS TOBACCO?

- Tobacco users expect to be encouraged to quit by health professionals.
- Screening for tobacco use and providing tobacco cessation counseling are positively associated with patient satisfaction (Barzilai et al., 2001).

Failure to address tobacco use tacitly implies that quitting is not important.

Barzilai et al. (2001). *Prev Med* 33:595–599.

HELPING PATIENTS QUIT IS a CLINICIAN'S RESPONSIBILITY

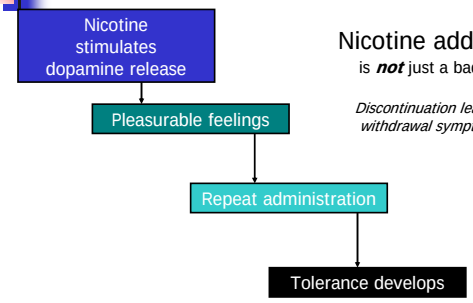
TOBACCO USERS DON'T PLAN TO FAIL. MOST FAIL TO PLAN.

Clinicians have a professional obligation to address tobacco use and can have an important role in helping patients plan for their quit attempts.

THE DECISION TO QUIT LIES IN THE HANDS OF EACH PATIENT.

PROBLEM #1: ADDICTION TO NICOTINE

BIOLOGY of NICOTINE ADDICTION: ROLE of DOPAMINE



Nicotine addiction is ***not*** just a bad habit.

Discontinuation leads to withdrawal symptoms.

Benowitz. (2008). *Clin Pharmacol Ther* 83:531–541.

NICOTINE PHARMACODYNAMICS: WITHDRAWAL EFFECTS

- Irritability/frustration/anger
- Anxiety
- Difficulty concentrating
- Restlessness/impatience
- Depressed mood/depression
- Insomnia
- Impaired performance
- Increased appetite/weight gain
- Cravings

Most symptoms manifest within the first 1–2 days, peak within the first week, and subside within 2–4 weeks.

Hughes. (2007). *Nicotine Tob Res* 9:315–327.

FDA-APPROVED MEDICATIONS for CESSATION

Nicotine polacrilex gum
- Nicorette (OTC)
- Generic nicotine gum (OTC)

Nicotine lozenge
- Commit (OTC)
- Generic nicotine lozenge (OTC)

Nicotine transdermal patch
- Nicoderm CQ (OTC)
- Nicotrol (OTC)
- Generic nicotine patches (OTC, Rx)

Nicotine nasal spray
- Nicotrol NS (Rx)

Nicotine inhaler
- Nicotrol (Rx)

Bupropion SR (Zyban)

Varenicline (Chantix)

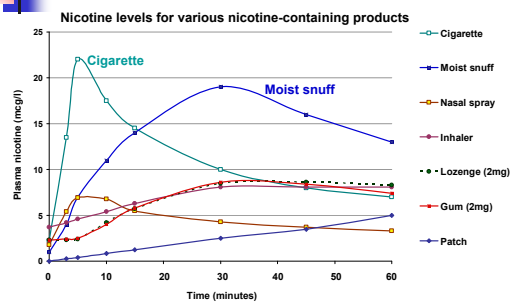
These are the only medications that are FDA-approved for smoking cessation.

NRT: RATIONALE for USE

- Reduces physical withdrawal from nicotine
- Eliminates the immediate, reinforcing effects of nicotine that is rapidly absorbed via tobacco smoke
- Allows patient to focus on behavioral and psychological aspects of tobacco cessation

NRT products approximately doubles quit rates.

PLASMA NICOTINE CONCENTRATIONS for NICOTINE-CONTAINING PRODUCTS



NICOTINE GUM

Nicorette (GlaxoSmithKline); generics

- Resin complex
  - Nicotine
  - Polacrilin
- Sugar-free chewing gum base
- Contains buffering agents to enhance buccal absorption of nicotine
- Available: 2 mg, 4 mg; original, cinnamon, fruit, mint (various), and orange flavors

NICOTINE LOZENGE

Commit (GlaxoSmithKline); generics

- Nicotine polacrilex formulation
  - Delivers ~25% more nicotine than equivalent gum dose
- Sugar-free mint (various), cappuccino or cherry flavor
- Contains buffering agents to enhance buccal absorption of nicotine
- Available: 2 mg, 4 mg

TRANSDERMAL NICOTINE PATCH

NicoDerm CQ (GlaxoSmithKline); generic

- Nicotine is well absorbed across the skin
- Delivery to systemic circulation avoids hepatic first-pass metabolism
- Plasma nicotine levels are lower and fluctuate less than with smoking

NICOTINE NASAL SPRAY

Nicotrol NS (Pfizer)

- Aqueous solution of nicotine in a 10-ml spray bottle
- Each metered dose actuation delivers
  - 50 mcL spray
  - 0.5 mg nicotine
- ~100 doses/bottle
- Rapid absorption across nasal mucosa

NICOTINE INHALER

Nicotrol Inhaler (Pfizer)

- Nicotine inhalation system consists of:
  - Mouthpiece
  - Cartridge with porous plug containing 10 mg nicotine and 1 mg menthol
- Delivers 4 mg nicotine vapor, absorbed across buccal mucosa

BUPROPION SR
Zyban (GlaxoSmithKline); generic

- Nonnicotine cessation aid
- Sustained-release antidepressant
- Oral formulation

VARENICLINE
Chantix (Pfizer)

- Nonnicotine cessation aid
- Partial nicotinic receptor agonist
- Oral formulation
- One case report of severe hypoglycemia with use in a patient with Type 1 DM
- Caution with patients with mental health diagnosis

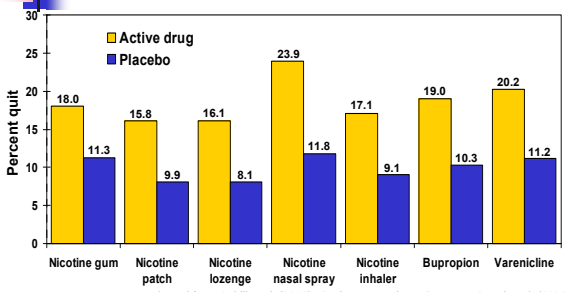
Kristensen et al. Varenicline may trigger severe hypoglycemia in type 1 dm. Diabetic Medicine. 2008;25:625.

Clinical trials in patients with DM

- Very few trials (4!), with limited success.
- Consider integration into diabetes education services.
- No trials with bupropion or varenicline

Hokanson JM et al. Integrated Tobacco Cessation Counseling in a DSM training program. Diabetes Educator. 2006;32:562.

LONG-TERM (≥6 month) QUIT RATES for AVAILABLE CESSATION MEDICATIONS



Data adapted from Cahill et al. (2008). *Cochrane Database Syst Rev;* Stead et al. (2008). *Cochrane Database Syst Rev;* Hughes et al. (2007). *Cochrane Database Syst Rev*

COMBINATION PHARMACOTHERAPY

Regimens with enough evidence to be 'recommended' first-line

- **Combination NRT**

  Long-acting formulation (patch)
  - Produces relatively constant levels of nicotine

  PLUS

  Short-acting formulation (gum, inhaler, nasal spray)
  - Allows for acute dose titration as needed for nicotine withdrawal symptoms
- **Bupropion SR + Nicotine Patch**

YOUR ROLE in PROMOTING CORRECT MEDICATION USE

- Most patients under dose the products.
- You can have an important impact on patients' success in quitting if you:
  - Instruct patients to read **all** directions.
  - Advise patients to use the products according to the recommended dosing schedule.
    - Use on a steady, consistent basis throughout the day
    - Do **not** use "as needed."

Medications are effective, but they are just one component of comprehensive treatment for tobacco cessation.

Behavior change is equally important.

PROBLEM #2: CHANGING BEHAVIOR

TOBACCO CESSATION REQUIRES BEHAVIOR CHANGE

- Fewer than 5% of people who quit without assistance are successful in quitting for more than a year.
- Few patients adequately PREPARE and PLAN for their quit attempt.
- Many patients do not understand the need to change behavior
- Patients think they can just "make themselves quit"

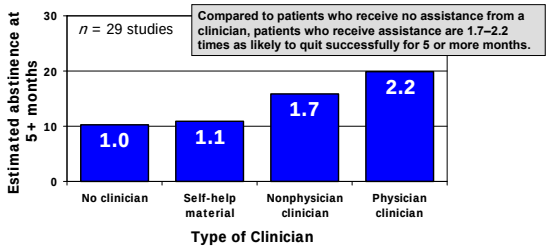
Behavioral counseling is a key component of treatment for tobacco use and dependence.

CHANGING BEHAVIOR (cont'd)

- Often, patients automatically smoke in the following situations:
  - When drinking coffee
  - While driving in the car
  - When bored
  - While stressed
  - While at a bar with friends
  - After meals
  - During breaks at work
  - While on the telephone
  - While with specific friends or family members who use tobacco
- Behavioral counseling helps patients learn to cope with these difficult situations without having a cigarette.

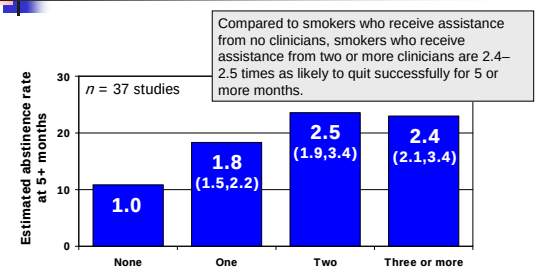
CLINICIANS CAN MAKE a DIFFERENCE

With help from a clinician, the odds of quitting approximately doubles.



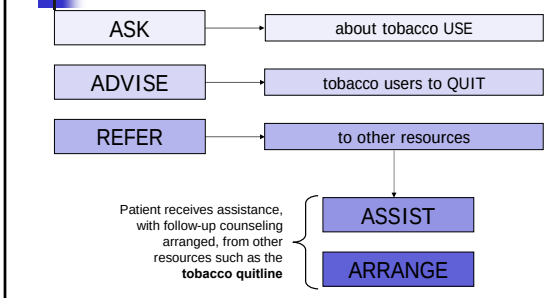
Fiore et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline.* Rockville, MD: USDHHS, PHS, May 2008.

The NUMBER of CLINICIANS CAN MAKE a DIFFERENCE, too



Fiore et al. (2008). *Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline.* Rockville, MD: USDHHS, PHS, May 2008.

BRIEF COUNSELING: ASK, ADVISE, REFER



STEP 1: ASK

- ASK about tobacco use
  - "Do you, or does anyone in your household, ever smoke or use any type of tobacco?"
    - "We like to ask our patients about tobacco use, because it has the potential to interact with many medications."
    - "We like to ask our patients about tobacco use, because it contributes to many medical conditions."

STEP 2: ADVISE

- ADVISE tobacco users to quit (clear, strong, personalized)
  - "It's important that you quit as soon as possible, and I can help you."
  - "Cutting down while you are ill is not enough."
  - "Occasional or light smoking is still harmful."
  - "I realize that quitting is difficult. It is the most important thing you can do to protect your health now and in the future. I have training to help my patients quit, and when you are ready, I will work with you to design a specialized treatment plan."

STEP 3: REFER

- REFER tobacco users to other resources

  Referral options:
  - A doctor, nurse, pharmacist, or other clinician, for additional counseling
  - A local group program
  - The support program provided free with each smoking cessation medication
  - The toll-free telephone quit line: 1-800-QUIT-NOW

MAKE a COMMITMENT...

Address tobacco use
with all patients.

At a minimum,
make a commitment to incorporate brief tobacco interventions as part of routine patient care.

Ask, Advise, and Refer.

Quitting Services for Tobacco Users

Sandra Schulthies, MS
Tobacco Prevention and Control Program
Utah Department of Health
www.tobaccofreeutah.org

Tobacco Use in Utah: The Problem

- More than 230,000 Utahns use tobacco
- More than 1,100 die annually from their smoking
- Nearly 14,800 children exposed to secondhand smoke in their homes
- $618 million each year in smoking-attributable medical and lost productivity costs

Tobacco Use Trends in Utah

12.5	Average age of initiation
60%	Start smoking by age 14
90%	Start smoking by age 19
80%	Want to quit
> 50%	Report trying to quit this past year

Tobacco Use in Utah: The Opportunity

- "Smoking cessation represents the single most important step smokers can take to enhance the length and quality of their lives."
  -Antonio C. Novello, MD, MPH, Surgeon General
  U.S. Public Health Service
- Evidence-based tobacco cessation programs can more than double or triple a smoker's chance of quitting compared to cold turkey
  US Public Health Service

Helping Tobacco Users Quit

- **ASK** the patient if he or she uses tobacco
- **ADVISE** him or her to quit
- **REFER** him or her to quitting services

National Resources

- 1-800 QUIT NOW
- Becomeanex.org

American Legacy Foundation

Quitting Services for Utah Tobacco Users

- The Utah Tobacco Quit Line
- Utah QuitNet
- Local Services
  - Ending Nicotine Dependence (youth program)
  - First Step (pregnant women)
  - Community Programs

About the Utah Tobacco Quit Line

- Toll free: 1.888.567.TRUTH (8788)
  - Spanish: 1.877.629.1585
  - TTY: 1-877-777-6534
- Monday-Sunday, 6:00 am to 1:00 am
- Free
- For adults and youth
- Services available in English, Spanish and translation in 140 other languages

The Utah Tobacco Quit Line

- Medium is familiar
- More likely to use than in-person counseling
- Can be accessed anywhere, anytime
- Confidential

Utah Tobacco Quit Line

- Registration
- Professional counseling sessions by telephone
- Individualized Quit Plan
- **NRT** upon qualification
- Quit Kits & Information
- Tailored resources for Utah residents

The TRUTH
to quit, call: 1.888.567.TRUTH

Spanish Quit Line:
1.877.629.1585

Utah Tobacco Quit Line Outcomes FY2008

- 30-day point prevalence tobacco abstinence rate (English completer rates): 41.8%
- 30-day point prevalence reduction rate (English completer rates): 61.6%
- Satisfaction (English completer rates): 80.4% very or mostly satisfied

Fax Referral System

"Would you like the Utah Tobacco Quit Line to help you quit?"

3 Simple Steps

1. Personalize your forms online at: www.tobaccofreeutah.org/utqlprofax.html
2. For those ready to quit give them the form to fill out. Verify signature!
3. Fax form in to the Utah Tobacco Quit Line: 1-800-483-3076

*The Quit Line will fax you to inform you of services your patient received.

UTAH QUITNET
The TRUTH UTAHQUITNET.COM

http://utahquitnet.com

- Quitting guide
- Medication guide
- Expert counseling
- Free
- Personalized quit plan
- 24 hour community support
- Online NRT purchase
- Anonymous

Lifetime membership!

Utah QuitNet Quit Rates FY 2008

- 7-day point prevalence tobacco abstinence rate (completer rate)
  - 20.3%

Based on in-depth study of MN users who utilize the same QN services

Local Services

- "First Step" Prenatal Cessation
- Adult Cessation Information/Classes
- "Ending Nicotine Dependence" Youth Cessation

The TRUTH

For more information, contact:
Tobacco Free Resource Line: 1-877-220-3466 or
http://www.tobaccofreeutah.org/healthcare1.html